solve in large quantities. All of these gases are easily expelled by simply boiling the water.

Rain water generally contains far less organic matter than river water. River waters, though, differ greatly in the amount and character of the matter, in solution and suspension, as regards potability. Thus, if water drains over an impervious stratum, as a granitic formation, the water is apt to be soft, and to contain but little solid matter in solution. Some waters of this character contain only from three to five grains of solid matter to the gallon; they possess a high solvent power on lead and iron pipes, but are otherwise of the best character.

Where the rocks consist largely of carbonates of lime or magnesia, the waters are apt to be hard, their action on lead and iron pipes is small, and they require a greater expenditure of soap in washing, but are not otherwise objectionable, unless the carbonates are greatly in excess.

It is stated that the health and physique of hard water districts is better than in soft water districts; the water furnishing an abundance of material needed in the formation of the bones.

Each "*degree of hardness*" (*i. e.*, each grain of chalk or sulphate of lime, dissolved in a gallon of water) will entail, however, the additional use of two-and-a-half ounces of soap for every 100 gallons of water; so that it is well to get rid of the carbonates in solution, if possible. This may be partially effected in two ways; either by boiling the water, or by adding milk of lime. Both methods depend on the fact that water can dissolve only two grains per gallon of carbonate of lime, unless it contains carbonic acid in solution, when it can dissolve very much more.

Boiling expels this acid; thus reducing the amount of carbonate of lime in the water in solution to, at most, two grains per gallon. By the second, called "Clarke's process," the added lime-water combines chemically with all the free carbonic acid, forming carbonate of lime, which thus settles